

What is claimed is:

1. A digital to RF-conversion device for converting a digital signal having a plurality of data bits for providing a differential output signal modulated by a carrier signal, the carrier signal provided between two carrier signal ends, wherein the differential output signal is formed with current loads and provided between two output ends, said device comprising:

a plurality of conversion units connected in parallel, each unit adapted to receive a control voltage indicative of a data signal value, the control voltage provided between two control voltage ends, each unit comprising:

a first differential switch section having:

two input current paths, each operatively connected to a different one of the output ends; and

two differential switch pairs connected to the control voltage ends for conveying in the two input current paths differential currents indicative of the data signal value;

a second differential switch section having two control current paths, each operatively connected in series to a different one of the two differential switch pairs, the control current paths operatively and separately connected to different ones of the carrier signal ends, for modulating the differential currents with the carrier signal; and

a current source, operatively connected in series to the second differential switch section for further controlling currents in the control current paths.

2. The device of claim 1, wherein the current source comprises at least one current adjusting component having a control terminal, operatively connected to a bias voltage level, for adjusting the current passing through the current adjusting component.

3. The device of claim 1, wherein the second differential switch section comprises two current switching components disposed in different ones of the control current paths, each of the current switching components having a control terminal operatively connected to a different one of the carrier signal ends.

4. The device of claim 1, wherein the first differential switch section comprises a first pair of differential switches and a second pair of differential switches, each pair

having two current switches operatively connected to different ones of the control voltage ends.

5. A method for direct digital to RF-conversion for converting a digital signal having a plurality of data bits for providing a differential output signal modulated by a carrier signal, the carrier signal provided between two carrier signal ends, wherein the differential output signal is formed with current loads and provided between two output ends, said method comprising the steps of:

- 1) providing a plurality of conversion units connected in a parallel, each unit adapted to receive a control voltage indicative of a data signal value, the control voltage provided between two control voltage ends, each unit comprising:
 - a first differential switch section having:
 - two input current paths, each operatively connected to a different one of the output ends; and
 - two differential switch pairs connected to the control voltage ends for conveying in the two input current paths differential currents indicative of the data signal value; and
 - a second differential switch section having two control current paths, each of which operatively connected in series to a different one of the two differential switch pairs;
 - 2) operatively and separately connecting the control current paths to different ones of the carrier signal ends, for modulating the differential currents with the carrier signal; and
 - 3) operatively connecting a current source in series to the second differential switch section for further controlling currents in the control current paths.